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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/829,620	04/22/2004	Blaine D. Johs		7329

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EXAMINER	
AKANBI, ISIAKA O	

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/829,620	JOHS ET AL.	
	Examiner	Art Unit	
	Isiaka O. Akanbi	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *22 April 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement file 22 April 2004 has been entered and reference considered by the examiner.

Drawings

The examiner approves the drawings filed 22 April 2004.

Claim Objections

Claim 1 is objected to because of the following informalities: Multiple periods in each of the claim 1 sub-claim is inappropriate (i.e. "a."). Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Aspnes et al. (5,973,787).

As regard to claim 1, Aspnes discloses a system for monitoring change comprising of the following:

the intensity of and/or the ratio of and/or

the phase between orthogonal components in;

a spectroscopic beam of electromagnetic radiation which is caused by interaction with a material system (fig. 1)(col. 6, line 53-55);

said system comprising at least one lens (16 (i.e. achromatic lens)) which is of multiple element construction and positioned so that beam of electromagnetic radiation transmits therethrough, wherein at least two elements thereof are made from different materials, such that in use the focal length for each wavelength in a range of wavelengths is within an acceptable range of focal lengths (fig. 1)(fig. 4)(col. 5, line 39-41).

said at least one multiple element lens being characterized by at least one selection from the group consisting of:

a) the focal length is between forty and forty-one millimeters over a range of wavelengths of at least two-hundred to seven-hundred nanometers;

b) the focal length varies by less than five (5%) percent over a range of wavelengths of between two-hundred and five-hundred nanometers; and

c) the spot diameter at the focal length Is less than seventy-five microns over a range of wavelengths of at least two-hundred to seven-hundred nanometers (col. 5, line 33-36).

said system further comprising at least one compensator (8/68) positioned so that beam of electromagnetic radiation transmits therethrough, said compensator being characterized by a selection from the group consisting of:

said at least one compensator (8/68) produces a retardance of between seventy-five (75) and one-hundred-thirty (130) degrees over a range of wavelengths defined by a selection from the group consisting of: a) between one-hundred-ninety (190) and seven-hundred-fifty (750) nanometers, b) between two-hundred-forty-five (245) and nine-hundred (900) nanometers, c) between three-hundred-eighty (380) and seventeen-hundred (1700) nanometers, d) within a range of wavelengths defined by a maximum wavelength (MAXW) and a minimum wavelength (MINW) wherein the ratio of (MAXWI/IMINW) is at least one-and-eight-tenths (1.8) (col. 4, line 65-67)(fig. 3): and

said at least one compensator (8/68) produces a retardation between thirty (30.0) and less than one-hundred-thirty-five (135) degrees over a range of wavelengths specified from MINW to MAXW by a selection from the group consisting of:

MINW less than/equal to one-hundred-ninety (190) and MAXW greater than/equal to seventeen-hundred (1700), HINW less than/equal to two-hundred-twenty (220) and MAXW greater than/equal to one-thousand (1000) nanometers, within a range 6f wavelengths defined by a maximum wavelength (HAXW) and a minimum wavelength (MINW) range where (HAXWI/IMINW) is at least four-and one-half (4.5) (fig. 3).

As to claims 2 and 6, Aspnes discloses said at least one multiple element lens (8/68) demonstrates birefringence (col. 6, line 27).

As to claim 3, Aspnes discloses said at least one multiple element lens (16/60)/(8/68)(i.e. achromatic lens) comprising at least two elements which are made from different materials independently selected from the group consisting of:

CaF_2 ;

BaF_2 ;

LiF;

MgF_2 ;

Fused silica;

a void region;

a gas filled region;

a liquid filled region; and

a functional equivalent to a void region (col. 5, line 39-41)(col. 6, line 26-33).

As to claim 4, Aspnes discloses during data collection, said at least one compensator is caused to perform motion selected from the group consisting of:

continuously rotates; and

sequentially rotates through a plurality of discrete angles;

around an axis defined by the locus electromagnetic beam as it transmits of the spectroscopic therethrough (col. 2, line 44-46).

Regarding claim 5, Aspnes discloses spectroscopic ellipsometer system comprising:

a source of polychromatic electromagnetic radiation (4/50);

a polarizer (6/56) which remains fixed in position during data acquisition;

a stage for supporting a sample system (fig. 1)(fig. 4);

an analyzer (10/70) which remains fixed in position during data acquisition; and

a multi-element spectroscopic detector system (12/72);

said spectroscopic ellipsometer system further comprising at least one rotating or rotatable compensator (8/68) means for discretely, sequentially, modifying a polarization state of a beam of electromagnetic radiation provided by said source of polychromatic electromagnetic radiation through a plurality of polarization states, said rotating or rotatable means for discretely, sequentially, modifying a polarization state of a beam of electromagnetic radiation provided by said source of polychromatic electromagnetic radiation through a plurality of polarization states being present at least one location selected from the group consisting of:

between said polarizer and said stage for supporting a sample system and between said stage for supporting a sample system and said analyzer and positioned so that said beam of electromagnetic radiation transmits therethrough in use, further Aspnes discloses said spectroscopic ellipsometer system further comprising at least one multiple element lens present at least one location selected from the group consisting of: between said polarizer and said stage for supporting a sample system and between said stage for supporting a sample system and said analyzer and positioned so that said beam of electromagnetic radiation transmits therethrough in use (col. 6, line 47-51).

said at least one compensator means comprising at least one rotatable compensator selected from the group consisting of:

a) a selection from the group consisting of:

a single element compensator and a multiple element compensator (col. 3, line 39-62).

As to claim 7, Aspnes discloses multi-element lens ((16/60)(i.e. achromatic lens))(8/68) located both:

between said polarizer and said stage for supporting a sample system and between said stage for supporting a sample system and said analyzer (fig. 1)(fig. 4);

wherein each of said lenses comprise at least two elements which are made front different materials, such that in use the focal length for each wavelength in a range of wavelengths is within an acceptable range of Focal lengths, wherein said input and output lenses are characterized by a selection from the group consisting of:

both demonstrate birefringence and one thereof demonstrates birefringence and the other not (fig. 1)(fig. 4);

said multi-element lenses being characterized by a selection from the group consisting of:

x) at least one thereof comprising an element made of a selection from the group consisting of:

CaF_2 and fused silica;

y) at least one thereof is made of two elements, one of said elements being made of f used silica and the - other of CaF_2 (col. 6, line 26-33).

Regarding claim 8, Aspnes discloses a spectroscopic ellipsometer sequentially comprising:

a) a source (4/50) of a spectroscopic beam electromagnetic radiation;

b) a polarizer element (6/56);

in either order elements c and d:

c) optionally a rotating or rotatable compensator element, d) a multiple element input lens in which one element comprise liquid between two solid elements, e) a material system and further in ether order elements f and g: f) a multiple element input lens in which one element comprise liquid between two solid elements, g) optionally a rotating or rotatable compensator element, h) an analyzer element (10/70) and i) a spectroscopic detector System (12/72) and at least one of said optional rotating or rotatable compensator elements in c or q being present and oriented so that a spectroscopic electromagnetic beam provided by the source-thereof transmits therethrough along its axis of rotation (fig. 1)(fig. 4).

As to claim 9, aspens discloses beam directing means and/or windows located at least one selection from the group consisting of: a) between said source of a spectroscopic beam electromagnetic radiation and said material system and b) between said Material system and said detector system (fig. 1)(fig. 4).

Regarding claim 10, Aspnes discloses a spectroscopic ellipsometer system comprising a source (4) of a polychromatic beam of electromagnetic radiation, a polarizer (6/56), a stage for supporting a material system (figs. 1 and 4), an analyzer (10/70), a dispersive optics and at least one detector system which comprises a multiplicity of detector elements (12/72)(col. 6, line 55-56), said spectroscopic ellipsometer system further comprising at least one compensator(s) (8/68) positioned at a location selected from the group consisting of: before said stage for supporting a material system, after said stage for supporting a material system and both before an; after said stage for supporting a material system, such that when said spectroscopic ellipsometer system is used to investigate a material system present on said stage for supporting a material system at least one of said at least one compensator(s) is caused to continuously rotate while a polychromatic beam of electromagnetic radiation produced by said source of a polychromatic beam of electromagnetic radiation is caused to pass through said polarizer and said at least one compensator(s), said polychromatic beam of electromagnetic radiation being also caused to interact with a material system on said stage for supporting a material system, pass through said analyzer and interact with said dispersive optics such that a

multiplicity of essentially single wavelengths are caused to simultaneously enter a corresponding multiplicity of detector elements in said at least one detector system and said spectroscopic ellipsometer system further comprising at least one multiple element lens present at least one location selected from the group consisting of:

between said polarizer and said stage for supporting a sample system and between said stage for supporting a sample system and said analyzer and positioned so that said beam of electromagnetic radiation transmits therethrough in use (figs. 1 and 4)(col. 6, line 46-51).

As to claim 11, Aspnes discloses said at least one multi-element lenses ((16/60)(i.e. achromatic lens)) (8/68) is characterized by a selection from the group consisting of:

x) at least one thereof comprising an element made of a selection of from the group consisting CaF_2 and fused silica;

y) at least one thereof is made of two elements, one of said elements being made of fused silica and the other of CaF_2 (col. 6, line 26-33).

As to claims 12-15, Aspnes discloses a Chamber configured as a selection from the group consisting of:

it comprises at least one chamber region in which is present polarization state generator comprising component(s) prior to said material system, said material system, and polarization state detector comprising component(s) after said material system (figs. 1 and 4).

Additional Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references listed in the attached form PTO-892 teach of other prior art of a system for monitoring change that may anticipate or obviate the claims of the applicant's invention.

Conclusion

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isiaka Akanbi whose telephone number is (571) 272-8658. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Isiaka Akanbi
February 11, 2006